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1 INTRODUCTION

The University of Newcastle (UON), as an employer, has various legal obligations under the New South Wales Work Health and Safety Act 2011 (WHS Act). Under the WHS Act, UON is classified as a Person Conducting a Business or Undertaking (PCBU), and as such has a primary duty of care to ensure so far as reasonably practicable the health and safety of its workers and others whilst at work.

Furthermore, UON has obligations under the New South Wales Work Health and Safety Regulation 2011 (WHS Reg) which provides more details for managing specific risks in a workplace.

As part of these legal obligations, UON has a responsibility to manage hazards and risks across all its properties and facilities. Where these premises contain asbestos and other hazardous materials, procedures must be implemented to manage risks of potential exposure to workers and others from these materials. The purpose of the UON Hazardous Materials Management Plan (HMMP) is to describe the procedures designed to effectively manage any asbestos and other hazardous materials issues that may arise. This replaces the previous document that was issued in 2005.

The HMMP is to be read in conjunction with existing asbestos and other hazardous materials survey reports and the UON Hazardous Materials Register for UON properties and facilities and which is readily available to workers and contractors through the UON website. Where UON leases buildings and premises from a 3rd party the University has a responsibility to obtain an asbestos report from the owner.

Work undertaken at UON properties and facilities may be in a building where asbestos and other hazardous materials have been identified and may include maintenance, demolition or installation which could impact materials that contain asbestos or other hazardous substances. The works must be carried out in a manner, which ensures the protection of the health and wellbeing of UON workers, contractor’s, students and visitors and ensures that all personnel employed to work on the properties and facilities are aware of asbestos and other hazardous materials and their location.

2 OBJECTIVES OF THE HAZARDOUS MATERIALS MANAGEMENT PLAN

The ultimate goal for UON is to have an asbestos-free workplace in the long term. In the interim, UON will manage asbestos and other hazardous material hazards based on prioritisation and assessment of risk.

Hazardous Materials Audits are undertaken periodically at UON properties and facilities to update existing asbestos and other hazardous materials records. The purpose of the Hazardous Materials Audit is to identify the presence of asbestos and other hazardous materials and to assess the risk of exposure to personnel working at the properties which is associated with the presence and condition of hazardous materials.

This HMMP details the procedures designed to minimise the risk of exposure to asbestos and other hazardous materials for workers, maintenance personnel, contractors, students and visitors. The HMMP provides guidance for informing the relevant personnel of the control strategies that have been established to prevent exposure to airborne asbestos fibres and other hazardous materials.

This HMMP has been developed in line with the WHS Act, WHS Reg and the Code of Practice: How to Manage and Control Asbestos in the Workplace (Code of Practice).

See Attachment 1 for a list of all the relevant regulatory requirements that apply to asbestos and other hazardous materials.
3 DEFINITIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Asbestos Cement</td>
</tr>
<tr>
<td>ACM</td>
<td>Asbestos-Containing Material</td>
</tr>
<tr>
<td>ANZECC</td>
<td>Australian and New Zealand Environment and Conservation Council</td>
</tr>
<tr>
<td>ARCP</td>
<td>Asbestos Removal Control Plan</td>
</tr>
<tr>
<td>HMMP</td>
<td>Hazardous Materials Management Plan</td>
</tr>
<tr>
<td>NATA</td>
<td>National Association of Testing Authorities</td>
</tr>
<tr>
<td>PCB</td>
<td>Polychlorinated Biphenyl</td>
</tr>
<tr>
<td>SMF</td>
<td>Synthetic Mineral Fibre</td>
</tr>
<tr>
<td>SWMS</td>
<td>Safe Work Method Statement</td>
</tr>
<tr>
<td>SWA</td>
<td>Safe Work Australia</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>UON</td>
<td>University of Newcastle</td>
</tr>
<tr>
<td>WHS Act</td>
<td>New South Wales Work Health and Safety Act 2011</td>
</tr>
<tr>
<td>WHS Reg</td>
<td>New South Wales Work Health and Safety Regulation 2011</td>
</tr>
</tbody>
</table>

4 UON HEALTH AND SAFETY MANAGEMENT SYSTEM

UON is committed to achieving the highest performance in workplace health and safety with the aim of creating and maintaining a safe and healthy working environment throughout its properties and facilities.

In order to meet this commitment, UON has developed a Health and Safety Management System Framework consisting of policies, elements and guidelines to manage work health and safety risks. This commitment is detailed in the UON Health and Safety Policy (http://www.newcastle.edu.au/__data/assets/pdf_file/0004/273883/Health-and-Safety-Policy.pdf) and supported by the elements and guidelines of the Health and Safety Management System Framework (http://www.newcastle.edu.au/current-staff/working-here/work-health-and-safety/health-and-safety-management-system).


UON’s commitment to the health and safety of staff and students will be further actioned by the implementation of this HMMP with the Infrastructure and Facilities Services (IFS) unit responsible for the implementation, monitoring and adjustment of procedures and processes which will minimise the risk of exposure of workers to asbestos and other hazardous materials in accordance with the Health and Safety Management System Framework.
5 ORGANISATIONAL RESPONSIBILITIES

The following table summarises the responsibilities of UON personnel for development, maintenance, implementation, communication and consultation, and ongoing monitoring of the activities relating to the HMMP.

Table 1: Organisational Responsibilities

<table>
<thead>
<tr>
<th>HMMP Preparation, Maintenance and Audit</th>
<th>Organisational Responsibilities</th>
<th>Hazardous Materials Management Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsibility</strong></td>
<td><strong>Item</strong></td>
<td><strong>Activities</strong></td>
</tr>
<tr>
<td>Executive Committee</td>
<td>HMMP compliance</td>
<td>Exercise due diligence by ensuring adequate resources are in place so that the requirements of this procedure are met</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Hazardous Materials Audits</td>
<td>Periodic building inspection program</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Hazardous Materials Register</td>
<td>Maintain Hazardous Materials Register which is reviewed annually to ensure it remains current</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Signage</td>
<td>Arrange for signage to be installed where ACM is identified as being present</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services and H&amp;S team</td>
<td>Asbestos awareness training</td>
<td>Prepare program and determine delivery</td>
</tr>
</tbody>
</table>

**Workplace Implementation**

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Item</th>
<th>Activities</th>
<th>HSMS Framework Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Risk Assessment</td>
<td>Ensure that prior to construction, demolition or repair work being carried out that reference is made to the Hazardous Materials Register and a risk assessment is conducted where ACM and other hazardous materials are suspected of being present</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Contractor compliance Risk Management</td>
<td>Ensure that where relevant, special conditions are included in work specifications</td>
<td></td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Contractor compliance Risk Management</td>
<td>Ensure that contractors who are required to undertake work in an area where ACM or other hazardous materials are likely to be present, are informed of the risk and have access to the Hazardous Materials Register, that they have the appropriate procedures and equipment to undertake the work and that the work is conducted under the UON Permit to Work</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Asbestos Removal</td>
<td>Ensure that only suitably qualified and competent contractors perform asbestos removal when required</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>---------------------------------------</td>
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</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Monitoring</td>
<td>Ensure that monitoring is performed when work is undertaken in an area where ACM is present to check for contamination of surfaces and air</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>Infrastructure and Facilities Services</td>
<td>Communication</td>
<td>Provide information to affected locations where construction, demolition or repair work is to take place where ACM is present</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>H&amp;S team Leaders and Supervisors</td>
<td>Implement asbestos awareness training</td>
<td>Communication of asbestos information relating to UON facilities</td>
<td>HSG 5.3</td>
</tr>
<tr>
<td>Senior Managers / Managers</td>
<td>Communication</td>
<td>Inform IFS if any construction or repair work is required in their area of responsibility so that contractors and staff can be appropriately briefed regarding the potential hazards of the work including the possible presence of asbestos or asbestos containing materials</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>Senior Managers / Managers</td>
<td>Communication</td>
<td>Inform IFS and the H&amp;S team if any concerns are raised in their area regarding asbestos or other hazardous materials so that the matter can be addressed</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>Senior Managers / Managers</td>
<td>Communication</td>
<td>If the Faculty, School or Division is planning to undertake work that involves disturbance of building structure/fabric or equipment IFS must be contacted to ensure that any risk of exposure to ACM is managed in accordance with UON requirements.</td>
<td>KRA 3.3</td>
</tr>
<tr>
<td>H&amp;S team</td>
<td>Consultation</td>
<td>Provide professional input to UON’s asbestos management activities when required</td>
<td>KRA 3.3</td>
</tr>
</tbody>
</table>
6 CONSULTANT OCCUPATIONAL HYGIENIST

Where reference is made to a Consultant Occupational Hygienist in the HMMP this person(s) will be from a laboratory registered and accredited by the National Association of Testing Authorities (NATA) Australia.

The Consultant Occupational Hygienist will be required to be a Licensed Asbestos Assessor in accordance with the WHS Reg for air monitoring and clearance certificates provided for friable asbestos removal work from 1 January 2013.

Asbestos Identification Analysis and Airborne Asbestos Monitoring and Analysis must be undertaken by NATA Approved Identifiers and Counters.

IFS will be responsible for the selection of a Consultant Occupational Hygienist to undertake asbestos monitoring, clearance inspections, auditing, risk assessment, consulting and other technical services relating to asbestos and other hazardous materials at UON facilities and in accordance with the requirements of this HMMP.

7 ASBESTOS – OCCURRENCE IN THE WORKPLACE

Asbestos is a mineral silicate present in a fibre form. Common forms found in workplaces include blue asbestos (crocidolite), white asbestos (chrysotile) and brown or grey asbestos (amosite).

Asbestos fibres have unique properties such as flexibility, tensile strength, insulation (from heat and electricity) and chemical inertness, which made it one of the most useful and versatile minerals. Because it is the only natural mineral that can be spun and woven into useful fibres and fabrics in a similar way to cotton or wool it has been used extensively across a wide variety of industrial and domestic products, for example:

- Sprayed on fire proofing to structural steel beams (limpet asbestos);
- Sprayed under roofs and ceilings as decoration and for sound/fire insulation properties (vermiculite);
- Sprayed on for fire rating wall brackets and joint seals;
- Asbestos cement products including roof, internal and external wall and ceiling cladding, moulded pipe and conduit, downpipes and guttering;
- Door seals;
- Insulation to boilers pipes and other industrial plant;
- Expansion joints;
- Gasket material;
- Vinyl floor tiles;
- Paints;
- Insulation to fire doors,
- Waterproofing membrane;
- Electrical switchboards;
- Insulation to heater coils inside air conditioning ducting;
- Muffler bandage;
- Brake linings and clutch pads; and
- Wall and ceiling insulation.

In Australia, asbestos cement (AC) materials were first manufactured in the 1920s and were commonly used in the manufacture of commercial, industrial and residential building materials from the mid-1940s until the late 1980s. During the 1980s AC materials were phased out in favour of asbestos-free products and from 31 December 2003, the total ban on manufacture, use, reuse, import, transport, storage or sale of all forms of asbestos came into force. From the 1980s UON has had a program to manage asbestos where it is present in buildings which has included surveys, containment, exposure prevention, removal and ongoing monitoring.
ASBESTOS – HEALTH EFFECTS

The health effects from exposure to asbestos result from the inhalation of the long, thin asbestos fibres into the lungs. Because the fibres are so small they can penetrate deep into the alveoli and over a long period of time may cause damage to the lungs as a result of the irritant effect they have on the tissues. Other organs in the body occasionally may also suffer damage if the asbestos fibres are transmitted to the lymphatic system via the lung alveoli.

Health effects of asbestos can take a number of different forms. For example:

- **Pleural Plaques** – areas of benign white, smooth, raised scar tissue on the outer lining of the lung, internal chest wall or diaphragm. They are often the sign that there has been previous exposure to asbestos fibres. The plaques cause no symptoms and do not result in disease.

- **Asbestosis** – a chronic condition caused by fibrosis (scarring) of the lungs, which results in breathlessness, coughing and permanent lung damage caused by prolonged exposure to asbestos fibres.

- **Lung cancer** – a cancer of the larger and medium sized airways, which is similar to that caused by smoking. The combination of asbestos exposure and smoking has a synergistic effect, which greatly increases the risk of lung cancer.

- **Mesothelioma** – an aggressive cancer of the lung pleura and sometimes the peritoneum. This is often linked to exposure to blue asbestos (crocidolite) or brown asbestos (amosite). Because of the very long and thin nature of these fibres they are more irritant and therefore more damaging and can migrate out of the alveoli.

It should be stressed that the lung effects described are generally the result of prolonged and heavy exposure to asbestos fibres in the form of dusts.

The asbestos related health risk to the occupants of buildings/workplaces, which contain asbestos, is considered negligible. There is no risk of exposure from asbestos cement sheeting in good condition or other forms of asbestos that are sealed. Whilst ACM located within a workplace present a hazard it does not present a risk if maintained in good condition and if no asbestos fibres are released to the air.

9 GENERAL PRINCIPLES OF ASBESTOS MANAGEMENT

The general principles of asbestos management at UON are broadly covered by four separate steps. These are:

- Identification of asbestos in the workplace;
- Evaluation of the situation with regard to the type of asbestos, its condition, its location in relation to people, the activities that take place in the area and the risk of the fibres becoming airborne;
- Selection, implementation and communication of risk controls; and
- On-going monitoring and re-assessment.

The following hierarchy of controls must be considered when managing asbestos hazards:

- Eliminating the risk for example, removing the ACM;
- Where possible substituting a less hazardous material for the ACM, for example non-asbestos containing cement sheeting, rockwool or fibreglass batts for insulation;
- Applying engineering controls for example, enclosing, encapsulation or sealing in situ ACM;
- Using administrative controls for example, Asbestos Registers, Standard Operating Procedures, Permits to Work, training and communication, environmental monitoring, sampling and health surveillance;
- Using Personal Protective Equipment.

A combination of these controls may be required to adequately manage and control asbestos or ACM.
10 IDENTIFYING ASBESTOS

UON has had a program in place since the late 1980s for periodic surveys of buildings and premises to identify the presence of asbestos and to arrange removal where required. In addition, the University’s hazard reporting system can be used when staff or contractors suspect asbestos may be present in materials that have not previously been identified as containing asbestos.

The surveys involve visual assessment of the condition of the ACM to determine whether the ACM is in a satisfactory condition, or if deterioration has occurred since the previous survey. The surveys will determine if any remedial action, such as encapsulation, isolation or removal of the ACM is required.

Surveys are undertaken by an Occupational Hygienist every 5 years as a minimum and the outcomes are used to update UON’s Hazardous Materials Register which should include the following details:

- The location of the ACM;
- Dates when identification was made;
- Details of the competent person/s who identified the asbestos materials;
- Location of any ACM (including ACM in items of plant and equipment);
- The type of ACM (e.g. asbestos cement sheet, asbestos lagging on pipes and flues, asbestos gaskets in plant or machinery, etc.);
- Details of any material assumed to be asbestos;
- Photographs;
- Risk assessment;
- Any inaccessible areas that are likely to contain ACM; and
- Results of any analysis that has confirmed a material in a workplace is/is not an asbestos material.
- Details of action taken such as removal or other ACM management strategy.

The Register is updated each time a new survey is undertaken, when work takes place to remove or otherwise treat the material or when additional information becomes available from analysis of the material.

During surveys when materials suspected of containing asbestos are identified sampling and analysis will need to be performed. Sampling and analysis will include material that was previously identified as ACM has deteriorated.

11 EVALUATION OF ASBESTOS

All sampling of suspected ACM is to be undertaken by an Occupational Hygienist. The sampling process should be in accordance with the Code of Practice: How to Manage and Control Asbestos in the Workplace.

Analysis of the sample material, dust, debris or powder shall only be performed at a laboratory accredited by NATA.

When a sample is taken for analysis, the following information should be specified for inclusion in the analysis report provided by the testing authority:

- Location of the building and room number preferably marked up on a plan
- The sample identification number;
- The analysis method used;
- A description of the sample appearance;
- Proportion / concentration (if known) and type of asbestos present; and
- Comment on other materials detected.
When there are inaccessible areas that are deemed likely to contain asbestos, it should be assumed that asbestos is present e.g. wall cavities or ceiling spaces, until they are accessed and it is determined whether asbestos is present or not. The assumptions will be documented in the Hazardous Materials Register including the location, the building, room number and preferably marked up on a plan, and the date the assumption was made.

An essential function of the evaluation is to assess the risk of exposure of personnel to the asbestos identified and a hazard rating is assigned to each identified occurrence of ACM.

The potential health risks posed by ACM in premises are due to a number of risk factors including:

- Location of the material;
- Accessibility of the material;
- Condition of the material;
- Friability of the material.

The methodology used in the risk assessment is based on the Australian Standard AS4360-2004 Risk Management. The hazard levels described in the Hazardous Material Register have been assessed according to the information provided in Appendix 2.

The information from the risk assessment and evaluation can be used to determine the health risk from the presence of asbestos and the priority for action depending on the risks. The overall hazard level can be determined by multiplying the hazard levels for each of the risk criteria listed in the table in Appendix 2 e.g. asbestos type, condition, location, airborne potential and exposure potential. The priority for action depends on the health risk and these are listed in the table in Appendix 3.

12 ASBESTOS RISK CONTROLS

The control of asbestos hazards will utilise the most appropriate method applicable to the particular circumstances and will take into consideration the condition of the ACM, its potential to suffer damage or mechanically degrade, and the likelihood of exposing people to airborne asbestos. The hierarchy of controls referred to in section 9 will be used to determine the control methods for the circumstances.

12.1 Removal

The removal of asbestos is considered appropriate when surveys and the risk assessment process conducted by the occupational hygienist has identified the ACM has deteriorated, has reached an unserviceable condition, or is at risk of being disturbed, and the other control options are not feasible.

Where demolition or refurbishment works are to occur, and this work is likely to impact on ACM, the ACM must be removed under controlled conditions prior to the commencement of any site works.

Removal of asbestos must be performed under controlled conditions by licenced and trained personnel, who are licensed Asbestos Removal Contractors working under the following conditions:

- The Asbestos Removal Contractor must be licensed in accordance with Section 458 of the NSW Work Health and Safety Regulation 2011. A copy of the current license is to be provided to the UON Principal Contractor prior to the commencement of work.
- All personnel employed by the Asbestos Removal Contractor must be appropriately trained in asbestos removal in accordance with Section 460 of the NSW Work Health and Safety Regulation 2011.
The Asbestos Removal Contractor must provide an Asbestos Removal Contract Plan (ARCP) in accordance with Section 464 of the *NSW Work Health & Safety Regulation 2011* to the UON Principal Contractor for approval prior to the commencement of work.

The Asbestos Removal Contractor must apply for and supply a copy of the “*Notification of Asbestos Removal Work*” to SafeWork NSW at least five days prior to the commencement of the asbestos removal work in accordance with Section 466 of the *NSW Work Health and Safety Regulation 2011* and this notification should be displayed in a prominent position during the asbestos removal project.

The asbestos removal process will be managed so that the risk of increased airborne fibre levels is controlled. The work location will be isolated from surrounding areas and measures taken to prevent the escape of airborne fibres from the work location. During the removal, control (static) air sampling will be carried out by a NATA Accredited Consultant Occupational Hygienist to ensure that the procedure used has kept the concentration of airborne asbestos dust to the minimum practical level (0.01 fibres/mL).

Air quality monitoring will be carried out using the internationally recognised sampling and analytical methodology in accordance with the “*Membrane Filter Method for Estimating Airborne Asbestos Fibre*” [NOHSC: 3003 (2005)].

On completion of asbestos removal work, a clearance certificate is required to ensure that removal sites are left in a safe condition, free of residual asbestos material.

An inspection report will be completed by the Consultant Occupational Hygienist who has carried out the air monitoring and analysis of surface dust for during the asbestos removal project. To be able to issue a clearance certificate, a visual clearance inspection is carried out and static air samples indicate a clear result of <0.01 fibres/mL. On receipt of the clearance certificate the area can be re-occupied.

If it is not reasonably practicable to remove the ACM, then other control measures must be implemented to ensure people are not exposed to airborne asbestos.

Copies of all records including licences, notifications to SafeWork NSW, monitoring and clearance certificates are to be retained by IFS, and the Hazardous Materials Register will be updated within 14 days.

### 12.2 Enclosure

Where it is not considered reasonably practicable to remove the ACM, the preferred alternative control measure is enclosure. This is an interim control measure and should be supported through regular inspections by a competent person to identify if the ACM requires removal due to damage or deterioration.

Enclosure involves installing a barrier between the ACM and adjacent areas which will reduce the risk of further mechanical damage to the material. Friable products such as pipe lagging or sprayed limpet asbestos may be targeted for enclosure where removal is not an option. The type of barrier installed may include plywood or sheet metal products, constructed as boxing around the ACM. The Hazardous Materials Register will be updated with the enclosure information within 14 days of the work being completed.

Consideration must be given when designing the enclosure for the need to provide access to the ACM for regular inspection of its condition and access to other building services.

### 12.3 Encapsulation or Sealing

If the ACM cannot be removed or enclosed, encapsulation or sealing is the next appropriate control measure.

Encapsulation refers to the coating of the outer surface of the ACM by the application of a sealant compound that usually penetrates to the substrate, hardens the material and provides a protective coating impermeable to asbestos fibres.

Encapsulation or sealing helps protect the ACM from mechanical damage, and is designed to reduce the risk of exposure by inhibiting the release of asbestos fibres into the airborne environment. Encapsulation or sealing is not considered to be an acceptable alternative to repairing or removing severely damaged ACM.
It is important to select coating that is appropriate to the material to be sealed and has the required fire resistance, thermal insulation and ultraviolet (UV) properties necessary for it to be an effective control.

12.4 Managing In Situ Asbestos

The identification of asbestos in a building or item of plant or equipment does not automatically necessitate its removal. Asbestos in a stable condition and not prone to mechanical damage can generally remain in situ. The asbestos will need to be inspected on a regular basis to ensure its integrity is maintained, it should be labelled with an appropriate warning, and must be removed under controlled conditions prior to demolition or refurbishment works that may disturb the asbestos.

The ongoing management of in situ ACM is important to ensure the material is not damaged or does not deteriorate to such an extent that staff, students or visitors are exposed to airborne asbestos fibres.

UON has established procedures for managing internal maintenance and building works in areas where ACM has been identified to ensure any ACM that may be encountered during the work to be undertaken is dealt with in the appropriate manner. See KRA 3.3 Asbestos Management Procedure at http://www.newcastle.edu.au/__data/assets/pdf_file/0017/205073/KRA-3.3-Asbestos-Management.pdf.

Risk controls include:

- Reference to the Hazardous Materials Register to identify whether ACM is present in the area;
- Work in an area where ACM has been identified will take place under a Permit to Work which is issued by IFS and/or the Principle onsite Maintenance Contractor;
- Safe Work Method Statements and/or other documented procedures will be provided by the contractor which take into account the management of work to prevent exposure to asbestos fibres;
- Risk controls may require isolation of the area as with asbestos removal, which may need re-location of staff and students who normally occupy the area;
- Air quality monitoring may have to be carried out by a NATA Accredited Consultant Occupational Hygienist to ensure that the procedure used has kept the concentration of airborne asbestos dust to the minimum practical level (0.01 fibres/mL);
- A clearance certificate to be issued by the Occupational Hygienist at the conclusion of the work.

12.5 Construction and/or Demolition Work

When carrying out construction or demolition work, any asbestos work will be completed before a structure or part of a structure is demolished.

ACM may not have been suspected or discovered in building areas that were inaccessible at the time of an asbestos survey due to the ACM being concealed in areas that were not accessible when employing non-destructive survey techniques. In order to minimise the risk of inadvertently exposing ACM during construction and demolition activities, UON or the Contractor is to arrange for destructive inspections and testing to determine if ACM is present in inaccessible areas such as building cavities during the project planning phase and prior to the commencement of other works in the work area. The inspection and testing will be conducted by an Occupational Hygienist.

If asbestos is found or suspected, the Hazardous Materials Register will be updated to reflect the known or suspected extent of ACM. Planning for the removal or management of the ACM will be undertaken and the same procedures will be applied as for asbestos removal, and for maintenance work in areas where ACM is known, or expected, to exist. This is to prevent exposure to staff, students and others located in the area during the construction or demolition works.

Procedures to be followed include but are not limited to:

- Consultation and if necessary relocation of staff in the affected area;
• Initial reference to the Hazardous Material Register;
• Work to be conducted under a UON Permit to Work;
• SWMSs for the safe conduct of work to be provided by the contractor;
• Work to be isolated from the surrounding areas with warning noticed posted on the perimeter of the area;
• Air quality monitoring to be conducted during the work to ensure that asbestos fibres are contained in the isolated area;
• Clean up of the area on completion of the work and further air monitoring and analysis of dust on surfaces to ensure a clear result of <0.01 fibres/mL;
• Appropriate disposal of asbestos waste;
• Re-occupation of the area when a clearance certificate has been issued by the Occupational Hygienist.

12.6 Disposal of ACM Products

UON staff and Contractors will arrange disposal of asbestos waste materials through a licenced waste contractor who will transport the material to an approved Waste Facility in a manner, which complies, with the requirements of the SafeWork NSW and the New South Wales Environment Protection Authority. The following procedures will apply to the management of the waste before it leaves site:

• AC Sheeting will be wrapped in 0.2 mm polyethylene sheeting and sealed with tape;
• Bulk waste and friable asbestos waste including waste from vacuum cleaners and soiled PPE will be placed into 0.2 mm polyethylene plastic bags labelled as “Asbestos Waste”. Bags are to be filled to no more than 1/2 full so that the weight is manageable and does not result in manual handling injury or bag rupture. The asbestos bags are to be sealed, placed into a second bag and sealed for appropriate disposal.
• Care must be taken to ensure that the integrity of the containment is not damaged during handling or transportation. In particular, bags of asbestos waste shall not be thrown or dropped from a height, which may rupture the bag.
• Controlled wetting of waste will be employed, where practicable, to reduce asbestos dust emission during bag sealing and in cases of accidental bag rupture during transportation.
• The asbestos waste will be disposed of at a site and in a manner as approved by the Local authorities. Documentary evidence of the disposal will be provided. This will include name of the authorised tip, weighbridge docket and registration number of vehicle for every disposal. The Occupational Hygienist will ensure this information is supplied.

12.7 Signage and Labelling

Sign-posting and labelling of known ACM will be carried out in accordance with the Safe Work Australia (SWA) Asbestos Codes of Practice. Labels should comply with Australian Standard 1216 (AS1216 – 1995 Class Labels for Dangerous Goods) and warning signs should comply with Australian Standard 1319 (AS1319 – 1994 – Safety Signs for the Occupational Environment).

UON staff from IFS and the Health and Safety Team are responsible for deciding the location of signs and/or labels which will be consistent with the locations included in the Hazardous Materials Register for each building.

Signs will be located at all main entrances to the buildings where there are a number of locations in the building where ACM is present. In other buildings where ACM is only present in one or two discreet locations a label will be posted to indicate that ACM is present in that material e.g. vinyl floor tiles, ceiling tiles, fire panels.

See Appendix 4 for examples of asbestos warning signs and labels.
12.8 Discovery of Suspected ACM

If during maintenance, installation or other work that is being conducted in an area where ACM has not been previously identified and the contractor suspects that they have found material that is suspected to be ACM the following procedures will apply:

- Work will cease immediately;
- The UON Project Manager will be contacted;
- The area will be isolated, barriers erected and warning signs posted;
- The event will reported as a hazard incident in the UON online All Incident Management System (AIMS) in accordance with the UON Guideline HSG 7.1, Incident Notification and Investigation;
- An Occupational Hygienist will be contacted so that the area can be inspected and samples taken for analysis;
- If the samples indicate there is no asbestos present the work can re-commence;
- If the samples indicate asbestos is present arrangements will be made to have the asbestos removed or encapsulated depending on the circumstances and the risk, and the procedures described for asbestos removal or for construction/demolition will be followed;
- When the asbestos removal or encapsulation has been completed and a clearance certificate issued by the Occupational Hygienist, the work can resume.

13 INFORMATION AND TRAINING

All UON Workers and Contractor’s required to work at a UON facility must undertake an online induction and onsite induction in accordance with UON Guideline HSG: 5.2 Health and Safety Inductions and HSG 6.1: Contractor Health and Safety Management

13.1 UON Workers

Specific hazardous materials awareness training and sharing of information has to be considered for workers who may be required to conduct maintenance, installation or other work where there is a risk of exposure to asbestos fibres or to other hazardous substances which are covered by the HMMP, or who may be located in an area where work is being carried out.

The form and delivery of the hazardous materials awareness training will depend on the risks of exposure and whether the participant group are conducting the work themselves or are present in the vicinity of where the work is conducted. The information could therefore be delivered in writing, verbally or in presentations but an essential feature of all training must be an opportunity for the participant groups to ask questions and be provided with responses.

The training program will include, but not be limited to, the provision of information on the following:

- Potential health effects of exposure to asbestos;
- Types, uses and likely presence of asbestos in the workplace;
- This HMMP and the risk controls to be implemented at UON sites to protect employees from exposure to asbestos and other hazardous materials e.g. Standard Operating Procedures (SOPs), good housekeeping practices, personal protective equipment (PPE), hazard and incident reporting;
- Management and worker responsibilities under the HMMP;
- Where the Asbestos Register is located, how it can be accessed and how to understand the information contained in it;
- Nature of operations which could result in asbestos exposure;
- Labelling and signage;
- Exposure monitoring for airborne contaminants and testing of dust and material samples;
- An explanation of exposure standards for asbestos and other hazardous materials;
• Responses to airborne asbestos fibre releases.

Training records will be maintained for each worker.

13.2 UON Contractors

Contractors will be provided with an appropriate level of site specific training during the induction process to ensure that they are aware of the requirements of the HMMP and also, that they are aware of any asbestos or other hazardous materials that may impact upon their work and the risk controls that must be followed including the UON Permit to Work which has to be issued for any work which is likely to involve asbestos containing materials.

Contractors will be informed where the Hazardous Materials Register is located, how it can be accessed and how to understand the information contained in it.

14 SYNTHETIC MINERAL FIBRES

The hazardous materials surveys that are conducted for the University have also included identification of the presence of synthetic mineral fibres (SMF) which have been included in the Hazardous Materials Register.

If the SMF is in good condition and is still required for insulation, there is no need for removal. If however, its removal is required the procedures outlined in Appendix 5 will be followed.

15 LEAD BASED PAINT

The hazardous materials surveys that are conducted for the University have also included identification of the presence of lead based paint which is then included in the Hazardous Materials Register.

It is UON policy to remove lead based paint whenever possible when it is identified. This should be in accordance with the SafeWork NSW Work Health and Safety Regulation 2011, Part 7.2.

Where the percentage lead content of paint by weight exceeds 1.0 % (10 mg/kg), the paint should be stabilised or removed by either chemical means or in a manner which does not liberate dust to the atmosphere. The paint will not be removed by dry sanding or by using electrical power tools. The methodology to be employed to remove flaking, chalking and peeling paint is to be by wet scraping and wet sanding which are among the safest methods of lead paint removal and minimise dust generation. The methodology will involve moistening the paint with water from an atomising or spray bottle and removal by hand using a hand-scaper or handsander. All waste will be collected from impervious plastic drop sheets for testing and final disposal.

16 POLYCHLORINATED BIPHENOLS (PCBs)

The hazardous materials surveys that are conducted for the University have also included identification of the presence of PCBs which, if identified, are included in the Hazardous Materials Register.

The removal of materials containing PCB shall be carried out in accordance with the NSW EPA Chemical Control Order in Relation to Materials and Wastes Containing Polychlorinated Biphenyl 1997.

The following procedure shall apply:

1. Personnel handling capacitors containing PCB will wear polyethylene gloves, disposable overalls and protective boots. Face-shields will be worn if working overhead or if leaking capacitors are evident.

2. Capacitors are removed and placed into impervious plastic bags, sealed and placed into metal drums which are lined with impervious plastic and sealed for disposal.

3. All protective clothing including gloves are to be disposed of by placing into impervious plastic bags, sealed and placed into metal drums which are lined with impervious plastic and sealed for disposal. Any other materials contaminated by PCB are to be thoroughly washed with kerosene.
4. The PCB waste will be disposed of by a contractor licensed by SafeWork NSW for the transport and disposal of PCB waste to remove the sealed waste containers from Site.

17 DOCUMENT MANAGEMENT

The Hazardous Material Management Plan (HMMP) will be managed jointly by IFS and the Health and Safety Team. It will be reviewed annually and updated according to any changes that have been made to the program during the past 12 months.

The Hazardous Materials Register will be maintained by IFS and will be regularly updated to reflect work that has been conducted to remove or encapsulate ACM or to include additional areas where ACM has been identified since the last survey was conducted.

Records of survey reports will be retained by IFS and surveys will be repeated every 5 years or more frequently if indicated.

Further information on document management can be found in the UON Guideline HSG 9.1 Records, Documents and Document Control.
APPENDIX 1: LEGISLATIVE AND OTHER APPLICABLE REQUIREMENTS FOR ASBESTOS AND OTHER HAZARDOUS MATERIALS

The following documents were used as reference when developing the HMMP.

LEGISLATIVE REQUIREMENTS

- NSW Work Health and Safety Act 2011;
- NSW Work Health and Safety Regulation 2011;
- Environmentally Hazardous Chemicals Act 1985;
- Protection of the Environment Operations Act, 1997; and

AUSTRALIAN STANDARDS

- Australian Standard 1319-1994 Safety Signs in the Occupational Environment;
- Australia/New Zealand Standard 1715-2009 Selection, Use and Maintenance of Respiratory Protection Devices;
- Australia/New Zealand Standard 1716-2012 Respiratory Protection Devices;
- Australian Standard 3544-2003 Industrial Vacuum Cleaners for Particles Dangerous to Health;
- Australian Standard 4260-1997: High efficiency particulate air (HEPA) filters – Classification, construction and performance; and
- Australia/New Zealand Standard 60335.2.69:2012 Household and Similar Electrical Appliances – Safety – Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use.

SPECIFIC ASBESTOS REQUIREMENTS

- NSW Code of Practice: How to Manage and Control of Asbestos in the Workplace;
- NSW Code of Practice: How to Safely Remove Asbestos; and

The Time Weighted Average (TWA) airborne asbestos fibre concentrations shall not exceed the legislated exposure standard of 0.1 fibres per millilitre.

SPECIFIC SYNTHETIC MINERAL FIBRES REQUIREMENTS

- National Standard for Synthetic Mineral Fibres;
- National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006(1990)]; and

The Safe Work Australia exposure level for airborne SMF is 0.5 fibre per millilitre of air (fibres/mL) as an 8-hour TWA.

SPECIFIC REQUIREMENTS FOR LEAD BASED PAINT

According to current standards and guidelines, where the percentage lead content of paint by weight exceeds 1.0% (10 mg/kg), the paint should be stabilised or removed by either chemical means or in a manner which
does not liberate dust to the atmosphere. The waste material should be also tested for total lead and leachable lead to determine the appropriate method for disposal. The paint is not to be removed by dry sanding or by electrical means.

The current standards and guidelines pertaining to lead paint management, removal, stabilisation and disposal include the following:


The Safe Work Australia exposure level for airborne lead is 0.15 mg/m³ as an 8-hour TWA.

SPECIFIC REQUIREMENTS FOR POLYCHLORINATED BIPHENYLS

The Environmentally Hazardous Chemicals Act 1985 provides a statutory framework enabling the control and regulation of chemicals and chemical wastes. The Act enables the NSW EPA to declare any chemical substance (including any mixture) to be a chemical waste.

The NSW EPA may control prescribed activities relating to chemicals and declared chemical waste by making a chemical control order in relation to the chemical or declared chemical waste. A Chemical Control Order in relation to materials and wastes containing polychlorinated biphenyl (PCB) was formulated in 1997 and controls the manufacture, processing, keeping, conveying and disposal of wastes containing more than fifty milligrams per kilogram of PCBs.

Where PCB’s are identified and to be removed, the removal of these materials shall be carried out in accordance with the Chemical Control Order In Relation to Materials and Wastes Containing Polychlorinated Biphenyl, 1997 issued by the Environment Protection Authority of NSW.

EXPOSURE STANDARDS

Exposure Standards may be reviewed from time to time, therefore the most recent publication of the Safe Work Australia (SWA) Workplace Exposure Standards document and NSW Legislation should be consulted for any variations (see the Hazardous Materials Information System located on the Safe Work Australia website at http://hsis.safeworkaustralia.gov.au/ for latest updates to documented Exposure Standards).
## APPENDIX 2: ASBESTOS RISK ASSESSMENT – HAZARD LEVELS

<table>
<thead>
<tr>
<th>Risk Factor / Description</th>
<th>Hazard Level</th>
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<tbody>
<tr>
<td><strong>ASBESTOS TYPE</strong></td>
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<tr>
<td>Bonded or Non-Friable</td>
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<tr>
<td>Friable</td>
<td>3</td>
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<tr>
<td><strong>CONDITION</strong></td>
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<tr>
<td>Fair</td>
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<tr>
<td>Poor</td>
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<td><strong>LOCATION</strong></td>
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<tr>
<td>Moderate</td>
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</tr>
<tr>
<td>High</td>
<td>3</td>
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<tr>
<td><strong>AIRBORNE POTENTIAL</strong></td>
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<tr>
<td><strong>EXPOSURE</strong></td>
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<tr>
<td>Low</td>
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<tr>
<td>Moderate</td>
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APPENDIX 3: HEALTH RISK AND PRIORITY FOR ACTION

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<th>Definition</th>
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<td>Hazard Level</td>
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<td>Hazard Level</td>
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<td>Action Priority</td>
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<td>Action Priority</td>
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</table>
APPENDIX 4: EXAMPLES OF ASBESTOS LABELS AND SIGNS

- Danger sign: "THIS MATERIAL CONTAINS ASBESTOS DO NOT DISTURB"
- Danger sign: "ASBESTOS AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA"
- Warning sign: "WARNING ASBESTOS"
  Materials in this area contain asbestos. Avoid creating dust. Prior to cutting or penetrating materials contact property manager and consult asbestos register.
- Warning sign: "WARNING ASBESTOS"
  Floor coverings in this area contain asbestos, do not cut or penetrate, avoid creating dust. Prior to building works contact property manager and consult asbestos register.
APPENDIX 5: SYNTHETIC MINERAL FIBRE (SMF) REMOVAL

Removal of SMF materials will be carried out in accordance with the current requirements of the NSW information guide on the safe management of synthetic mineral fibres (SMF) – glasswool and rockwool which is intended to complement SafeWork Australia’s guide to handling refractory ceramic fibres.

The following procedure will apply:

1. All personnel employed by the Contractor are to be appropriately trained in SMF removal.
2. The SMF removal work area is to be isolated with barrier tape and use of appropriate signage to prevent access by persons not involved with the project.
3. Personal protective equipment for synthetic mineral fibre removal shall include half-face cartridge type respirator fitted with Class P2 filters and disposable overalls, safety glasses and gloves.
   **Note:** Effective seal of respirators cannot be made over beards, long facial growth or spectacles.
4. Before SMF removal is carried out, all SMF to be removed should first be wetted down with water, using a hose fitted with a spray nozzle. A fine water spray should be used to keep waste material and the whole area damp.
5. SMF and associated waste including soiled disposable protective clothing should be placed in 0.2 mm polyethylene plastic bags, sealed, placed into a second bag and sealed for appropriate disposal.
6. SMF waste and other waste material is to be disposed of in the appropriate manner at an approved waste disposal facility. Disposal dockets are to be provided by the waste facility.
7. Air monitoring may be carried out during the SMF removal process to monitor dust generation. Air clearance monitoring may also be carried out inside the work area at the completion of work. An Occupational Hygienist will be required to conduct the air monitoring.
8. The work area will be inspected to ensure all waste and debris from the work is removed from the area and that no SMF materials remain.
9. Air clearance monitoring, inspections and certification are to be carried out and issued by the Occupational Hygienist prior to the removal of the work area barriers and the return of the area to its normal use.